



OPEN ACCESS

HIV, syphilis and sexual risk behaviours among men who have sex with men in Agadir and Marrakesh, Morocco

Lisa Grazina Johnston,¹ Kamal Alami,² M Houssine El Rhilani,² Mehdi Karkouri,^{3,4} Othoman Mellouk,⁵ Alise Abadie,⁴ Nadia Rafif,⁴ Lahoucine Ouarsas,⁴ Aziza Bennani,⁶ Boutaina El Omari⁷

Arabic Abstract translation

¹University of California, San Francisco, Global Health Sciences, San Francisco, USA
²UNAIDS, Rabat, Morocco
³Faculté de Médecine et de Pharmacie/Centre Hospitalier Universitaire Ibn Roche, Casablanca, Morocco
⁴Association de Lutte contre le sida, Marrakesh, Morocco
⁵International Treatment Preparedness Coalition, North Africa, Marrakesh, Morocco
⁶Ministère de la Santé, Programme National de Lutte contre le SIDA, Rabat, Morocco
⁷Unité de Gestion du Fonds Mondial, Ministère de la Santé, Rabat, Morocco

Correspondence to

Dr Lisa Johnston, Nieuwezijds Voorburgwal 64F, 1012 SC, Amsterdam 94105, Netherlands; lsjohnston.global@gmail.com, <http://www.lisagjohnston.com>

Received 13 November 2012
Revised 13 March 2013
Accepted 1 April 2013
Published Online First
25 April 2013

ABSTRACT

Objective To collect baseline measurements of HIV and syphilis prevalence and sexual risk behaviours among men who have sex with men (MSM) in Agadir and Marrakech, Morocco, and provide strategic information to improve outreach programmes.

Methods and Design Respondent-driven sampling was used to recruit men who reported having anal sex with another man in the last 6 months, aged 18 years and older and living in either Agadir or Marrakech for the past 6 months, regardless of nationality. Data were analysed with the multiplicity estimator using respondent-driven sampling analysis tool V.6.0.

Results 323 MSM in Agadir and 346 in Marrakech were recruited into the survey. Most MSM in both cities reported being < 25 years, being unemployed, bisexual and in a couple with both a man and a woman. Most reported selling sex and having sex with women. HIV prevalence was 5.6% in Agadir and 2.8% in Marrakesh; syphilis was 7.0% in Agadir and 10.8% in Marrakesh. Among MSM who tested positive for HIV, 31.6% in Agadir and 56.4% in Marrakesh were co-infected with syphilis.

Conclusions HIV and syphilis findings coupled with high risk activities indicate the need for expanding programmes targeting MSM throughout Morocco. Selling sex and sex with women may be a strategy to cope with extreme stigma towards MSM. Criminalisation and discrimination of MSM in Morocco underscores the urgent need for long-term and sustainable risk reduction through legal reforms and promotion and protection of human rights.

INTRODUCTION

HIV prevalence in Morocco is estimated at 0.15% among the general population. In the few published men who have sex with men (MSM) studies conducted to date in the five countries comprising North Africa, HIV prevalence was found to range from 1.4% to 6.2% in Egypt and 0% to 9% in Morocco.^{1 2} Incidence of HIV in MSM in Morocco is estimated to be 1.04% and HIV prevalence is projected to reach as high as 11.1%.¹ Recent surveys conducted in other Middle East and North African (MENA) countries have found that MSM engage in numerous high risk behaviours, including multiple sexual partnerships, commercial sex and unprotected anal intercourse.^{2 3} Additionally, MSM have reported being married or engaging in sexual intercourse with women, highlighting the possible transmission of HIV and other sexually transmitted infections (STIs) to female sex partners.^{3 4} Male-to-male sex in

Morocco is illegal and punishable by imprisonment and fines. This paper presents findings from a biobehavioural survey conducted among MSM in Agadir and Marrakesh, Morocco to provide information and establish baseline measurements of HIV and syphilis prevalence and sexual risk behaviours.

METHODS

MSM were sampled using respondent-driven sampling, a peer-to-peer recruitment method.^{5 6} The survey began with 10 participants in Agadir and 8 in Marrakesh, identified through outreach workers. Eligible men underwent consent, completed a face-to-face interview in Arabic, and provided blood specimens for HIV and syphilis testing. Upon completing the survey process, participants received up to three uniquely coded coupons to use in recruiting their peers. Respondents were compensated the equivalent of US\$7 for completing the survey and US\$3.50 for each eligible recruit who enrolled in the survey. To ensure anonymity, respondents' questionnaires and biological tests were identified using a unique number provided on the recruitment coupons. The Morocco Faculty of Medicine ethics committee approved the protocol.

Laboratory procedures

HIV samples were tested using ELISA. Reactive specimens were assessed using a western blot confirmatory test. ELISA and western blot discordant cases were tested again using a molecular biology tool polymerase chain reaction. Syphilis was tested using *Treponema pallidum* hemagglutination assay (TPHA) and Venereal Disease Research Laboratory (VDRL) tests (Omega Diagnostics Limited, Scotland, UK)—reactive serological TPHA and VDRL tests are presented (Table 1).

Statistical analysis

Population proportions and 95% CIs were derived with the respondent-driven sampling analysis tool V.6.0 using the multiplicity estimator.⁶

RESULTS

Three hundred and twenty-three MSM in Agadir and 346 in Marrakech enrolled in the survey. A maximum number of 12 waves was reached in the Agadir sample and 23 waves in the Marrakesh sample. Most MSM in both cities reported being <25 years, attending secondary school, being unemployed, single, bisexual and in a couple with a man and a woman (table 1). High percentages of men in both cities reported receiving



Open Access
Scan to access more
free content

To cite: Johnston LG, Alami K, El Rhilani MH, et al. *Sex Transm Infect* 2013;**89**:iii45–iii48.

Supplement

Table 1 Sociodemographic characteristics, sexual risk and infection status of men who have sex with men, Morocco, 2010–2011

	Agadir (N=323)			Marrakech (N=346)		
	N	%	95% CI	N	%	95% CI
Age (years)						
≤24	235	78.2	71.8 to 83.8	228	75.6	68.7 to 81.5
25+	88	21.8	16.2 to 28.2	117	24.4	18.3 to 31.4
Current education level						
None/Koranic	16	8.3	4.1 to 15.2	33	10.3	6.0 to 15.1
Primary	80	21.0	14.7 to 27.4	100	24.8	19.3 to 30.9
Secondary/professional	198	61.9	52.5 to 68.2	206	64.3	57.0 to 71.1
College/> secondary	29	8.7	4.5 to 15.7	6	0.7	0.2 to 1.4
Current employment status						
None	163	50.6	42.3 to 59.1	189	55.0	46.6 to 63.6
Employed	74	21.9	15.8 to 28.8	78	18.5	13.4 to 24.2
Student	86	27.5	20.2 to 35.3	79	26.5	18.5 to 34.7
Marital status						
Single	308	96.2	93.4 to 98.4	330	97.2	94.7 to 99.0
Married	13	3.5	1.3 to 6.2	5	0.9	0 to 2.5
Divorced	2	0.3	0 to 0.8	10	2.0	0.5 to 4.0
Sexual orientation						
None	13	1.9	0.9 to 3.5	–	–	–
Homosexual/gay	102	25.1	18.0 to 32.8	88	21.0	14.2 to 28.3
Bisexual	182	67.3	59.0 to 74.3	224	69.8	62.8 to 76.6
Heterosexual	7	3.0	1.0 to 5.7	32	8.8	5.5 to 13.0
Transsexual	4	2.3	0 to 6.6	1	0.4	0 to 1.0
Other	2	0.5	0 to 1.3	–	–	–
Current type of relationship						
Not in a stable relationship	61	15.8	10.9 to 20.9	85	25.3	18.8 to 32.7
As a couple with a man	57	25.2	18.0 to 32.7	89	27.8	20.7 to 34.3
As a couple with a woman	26	7.6	4.3 to 11.6	46	12.3	8.3 to 17.6
As a couple with a man and woman	178	51.5	43.9 to 59.1	124	34.5	27.6 to 41.5
Paid money or goods for sex (past 6 months)						
Yes	52	17.3	11.5 to 23.4	50	13.8	8.9 to 19.7
No	270	82.7	76.6 to 88.5	290	86.2	80.3 to 91.1
Received money or goods for sex in past 6 months						
Yes	214	64.7	58.1 to 72.1	234	65.6	57.6 to 72.9
No	108	35.3	27.9 to 41.9	109	34.4	27.1 to 42.4
Condom use—last anal sex with male commercial sex partner						
Yes	125	59.0	42.4 to 69.0	93	31.3	21.0 to 44.8
No	82	41.0	31.0 to 57.6	154	68.7	55.2 to 79.1
Anal sex—occasional male sex partners (past 6 months)						
Yes	245	78.0	71.0 to 83.8	179	52.7	44.1 to 60.0
No	77	22.0	16.2 to 29.0	165	47.3	40.0 to 55.9
Condom use—last anal sex with occasional male sex partner						
Yes	117	49.3	35.0 to 61.1	62	37.1	22.6 to 56.5
No	94	50.0	38.3 to 64.3	110	62.9	43.5 to 77.5
Anal sex—regular male sex partners (past 6 months)						
Yes	158	44.0	37.0 to 51.3	114	32.2	24.9 to 39.0
No	165	56.0	48.7 to 63.0	232	67.8	61.0 to 75.2
Condom use—last anal sex with regular male sex partner						
Yes	106	46.5	35.9 to 62.5	50	40.9	17.7 to 62.1
No	93	53.5	37.5 to 64.1	73	59.1	37.9 to 82.3
Ever had sex with a woman						
Yes	224	80.9	74.5 to 85.7	282	83.0	75.9 to 89.2
No	99	19.1	13.3 to 25.5	62	17.0	10.8 to 24.1
Number of female sex partners (past 6 months)						
0	6	1.2	0 to 2.5	34	11.3	5.2 to 17.6
1	42	19.0	9.0 to 25.3	68	24.0	15.8 to 30.2
2–4	73	35.4	28.6 to 48.8	95	36.1	28.2 to 45.5
≥5	100	44.3	34.3 to 54.2	87	28.6	22.5 to 37.8

Continued

Table 1 Continued

	Agadir (N=323)			Marrakech (N=346)		
	N	%	95% CI	N	%	95% CI
Condom use—last sex with female sex partner						
Yes	109	47.2	32.5 to 54.9	75	29.2	19.8 to 37.2
No	107	52.8	45.1 to 67.5	175	70.8	62.8 to 80.2
HIV status						
Negative	303	94.4	90.3 to 97.7	332	97.2	95.0 to 99.1
Positive	19	5.6	2.3 to 9.8	14	2.8	0.9 to 5.0
Syphilis status						
Negative	285	93.0	89.6 to 96.1	304	89.2	83.9 to 94.7
Positive	37	7.0	4.0 to 10.4	36	10.8	5.3 to 16.1

money for sex; lower percentages reported paying for sex. High percentages of MSM in both cities reported ever having sex with a female partner, among which most reported having had multiple female sex partners in the past 6 months. Although condom use was inconsistent with all partner types, it was especially low in Marrakesh. MSM in Agadir had a higher HIV prevalence, but lower syphilis prevalence, compared with MSM in Marrakesh. Co-infection with HIV and syphilis was 31.6% in Agadir and 56.4% in Marrakesh.

DISCUSSION

This is the first biobehavioural survey among MSM in Morocco and provides essential baseline data for understanding HIV risk patterns and trends. HIV prevalence in Agadir and Marrakesh was higher than that found in institutional studies of fairly large sample sizes ($n=1147$ in 2008; 1216 in 2009) of MSM testing at voluntary counseling and testing (VCT) centres across Morocco (1.2% in 2008; 2.2% in 2009).⁷ Currently, VCT programmes in Morocco do not focus on people at high risk for HIV infection and there are limited health services specially designed to meet the needs of MSM. Syphilis prevalence was around 10% in both cities and a sizeable percentage of MSM in Marrakesh who tested positive for HIV were co-infected with syphilis. STIs, especially those that result in genital ulcers, are easily transmitted to sexual partners and associated with increased sexual HIV transmission. STI screening, including periodic testing for some asymptomatic urethral and rectal infections such as *Neisseria gonorrhoeae* and *Chlamydia trachomatis*, should be included in all HIV testing of MSM.⁸

MSM in Agadir and Marrakesh practice numerous risky sexual behaviours, have multiple male partner types and do not use condoms consistently. This survey reaffirms some common and alarming facts found in other MENA countries, namely, that MSM commonly practice sex with women, are self-described as bisexual and are in a 'couple' with a woman (as well as with a man) as a means of coping with their same sex preference (eg, 'I am not homosexual as I am having sex with women') in an extremely stigmatising environment.⁹ Outreach efforts and policy changes, including decriminalising homosexuality and reducing stigma associated with male-to-male sex, must be developed to address the self-esteem and sexual health needs of these men and their female and male partners.

Equally alarming is the finding, also consistent throughout the MENA region,⁹ that a high percentage of MSM reported having received money or goods for sex in the past 6 months. The majority of MSM reported being either unemployed or students, indicating that selling sex is a means to generate extra income. The finding that most men in both cities self identified as bisexual and

around half who reported selling sex also had a female partner in the last 6 months may serve as a justification or coping mechanism for engaging in sex with men (eg, 'I have sex with men only for money, so I am not homosexual, this is a commercial transaction').

Given that male-to-male sex is criminalised and stigmatised, it is possible that we missed some isolated networks. For instance, the samples may have under-represented older, employed and/or extremely hidden MSM who may have been more reluctant to participate due to stigma, fear of being recognised or just not having the time. However, sample convergence was attained for all variables analysed here and the sample size was in excess of that calculated (equivalent to a design effect of almost 3) indicating ample statistical power for our analyses. In addition, the survey was conducted at a non-governmental organization that was known by respondents to provide HIV and other services and socially desirable responses may have been more prevalent than if the study were conducted in an objective setting. These findings illustrate the need to support enhanced packages for prevention, care and treatment of HIV infection provided in settings that are easily accessed by and comfortable to MSM. The current criminalisation and discrimination of MSM in Morocco underscores the urgent need for long-term and sustainable risk reduction through legal reforms and promotion and protection of human rights. Future rounds of biobehavioural surveys (as well as baseline surveys in other affected cities in Morocco), using the same sampling method, are needed to monitor HIV trends and assess progress.

Key messages

- ▶ The findings that 3% of men who have sex with men (MSM) in Marrakesh and 6% in Agadir are HIV positive, coupled with MSM having multiple male anal sex partner types and inconsistent condom use, demonstrates an urgent need to scale up services targeting this population.
- ▶ MSM are having unprotected sex with women, indicating further potential spread of HIV and other sexually transmitted infections to the wider population.
- ▶ MSM reported receiving money or goods for sex which may be a means of earning extra income and/or avoiding being 'homosexual' or 'gay'.
- ▶ High criminalisation and discrimination of MSM in Morocco, underscores the urgent need for long-term and sustainable risk reduction through legal reforms and promotion and protection of human rights.

Handling editor Jackie A Cassell

Contributors LGJ conducted the analyses and wrote the manuscript. KA, MHER, OM, AA, NR, LO, AB and BEO contributed to the design and conduct of the study and, along with MK, reviewed the manuscript.

Funding This work was supported by The Global Fund to Fight HIV/AIDS, Tuberculosis and Malaria, grant number [MOR-607-G02-H].

Competing interests None.

Ethics approval The protocol and questionnaire were submitted for ethical review and approval to the ethical committee of Faculty of Medicine of Casablanca, Morocco in November of 2010.

Provenance and peer review Commissioned; externally peer reviewed.

Open Access This is an Open Access article distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 3.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited and the use is non-commercial. See: <http://creativecommons.org/licenses/by-nc/3.0/>

REFERENCES

- Mumtaz G, Hilmi N, Zidouh A, *et al.* *HIV modes of transmission analysis in Morocco*. Rabat, Morocco: Kingdom of Morocco, Ministry of Health, Department of Epidemiology and Disease Control, 2010. http://www.unaids.org/en/media/unaids/contentassets/documents/countryreports/2010/201008_MOT_Morocco_en.pdf (accessed 1 Oct 2012).
- UNAIDS. UNGASS Country Progress Report-Arab Republic of Egypt. 2008–2009. Cairo, Egypt. <http://www.scribd.com/doc/48059335/National-AIDS-Program-Egypt-2008-2009-Report>
- Abu-Raddad LJ, Hilmi N, Mumtaz G, *et al.* Epidemiology of HIV infection in the Middle East and North Africa. *AIDS* 2010;24(Suppl 2):S5–25.
- Family Health International/Ministry of Health Egypt. HIV/AIDS Biological and Behavioral Surveillance Survey, Round two Summary Report. Cairo, Egypt, 2010.
- Heckathorn D. Respondent driven sampling II: deriving valid population estimates from Chain-Referral samples of hidden populations. *Soc Probl* 2002;49: 11–34.
- Sagalinik M, Heckathorn DD. Sampling and estimation in hidden populations using respondent driven sampling. *Soc Methodol* 2004;34:193–239.
- Morocco Ministry of Health. *National database of HIV data*. Rabat, Morocco: Kingdom of Morocco, Ministry of Health, Department of Epidemiology and Disease Control, 2010.
- World Health Organization. *Guidelines: prevention and treatment of HIV and other sexually transmitted infections among men who have sex with men and transgender people: recommendations for a public health approach*. Geneva, Switzerland: WHO, 2011.
- Abu-Raddad LJ, Akala FA, Semini I, *et al.* *Characterizing the HIV/AIDS epidemic in the Middle East and North Africa*. Time for Strategic Action. Middle East and North Africa HIV/AIDS Epidemiology Synthesis Project, World Bank/UNAIDS/WHO. Washington, DC: World Bank Press, 2010.



HIV, syphilis and sexual risk behaviours among men who have sex with men in Agadir and Marrakesh, Morocco

Lisa Grazina Johnston, Kamal Alami, M Houssine El Rhilani, et al.

Sex Transm Infect 2013 89: iii45-iii48 originally published online April 25, 2013

doi: 10.1136/sextrans-2012-050918

Updated information and services can be found at:

http://sti.bmj.com/content/89/Suppl_3/iii45.full.html

These include:

Data Supplement

"Arabic Abstract translation"

<http://sti.bmj.com/content/suppl/2013/10/17/sextrans-2012-050918.DC1.html>

References

This article cites 3 articles

http://sti.bmj.com/content/89/Suppl_3/iii45.full.html#ref-list-1

Open Access

This is an Open Access article distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 3.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited and the use is non-commercial. See: <http://creativecommons.org/licenses/by-nc/3.0/>

Email alerting service

Receive free email alerts when new articles cite this article. Sign up in the box at the top right corner of the online article.

Topic Collections

Articles on similar topics can be found in the following collections

[Open access](#) (148 articles)
[Drugs: infectious diseases](#) (2739 articles)
[HIV / AIDS](#) (2154 articles)
[HIV infections](#) (2154 articles)
[HIV/AIDS](#) (2154 articles)
[Syphilis](#) (706 articles)
[Human rights](#) (29 articles)

To request permissions go to:

<http://group.bmj.com/group/rights-licensing/permissions>

To order reprints go to:

<http://journals.bmj.com/cgi/reprintform>

To subscribe to BMJ go to:

<http://group.bmj.com/subscribe/>

Notes

To request permissions go to:
<http://group.bmj.com/group/rights-licensing/permissions>

To order reprints go to:
<http://journals.bmj.com/cgi/reprintform>

To subscribe to BMJ go to:
<http://group.bmj.com/subscribe/>